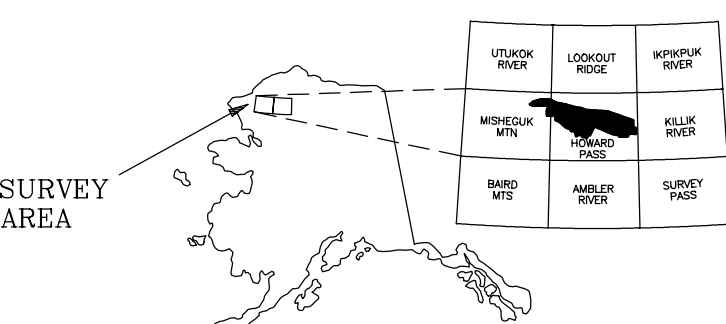


Scale from U.S. Geological Survey Howard Pass B-5, 1984;
C-5, 1984. Quadrangle, Alaska



DESCRIPTIVE NOTES

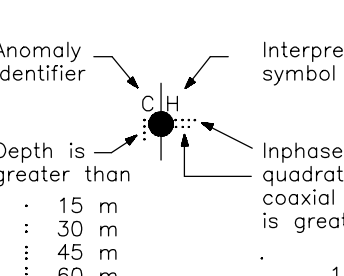
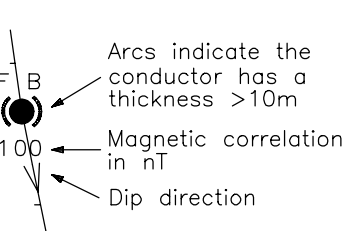
The geophysical data were acquired with a DigHEM[®] Electromagnetic (EM) system and a Scintrex cesium magnetometer. The EM and magnetic sensors were flown at a height of 100 feet. In addition the survey recorded data from a rotor altimeter, GPS navigation system, 50/80 Hz monitors and video camera. Flights were performed with an AS350B-2 Squirrel helicopter at a mean terrain clearance of 200 feet along NW-SE (340°) survey flight lines west of the red line shown on the location index and NE-SW (25°) survey flight lines east of the red line. Flight lines were spaced a quarter of a mile with the exception of the Drenchwater Creek area (red area) where flight lines were spaced every 0.1 mile. The lines were flown perpendicular to the flight line intervals of approximately 3 miles except for the Drenchwater Creek area, where the flight interval was 1.5 miles.

An Ashtech GG24 NAVSTAR / GLONASS Global Positioning System was used for navigation. The helicopter position was derived every 0.5 seconds using post-flight differential positioning to a relative accuracy of better than 5 m. Flight path positions were projected onto the Clarke 1866 (UTM zone 4) spheroid, 1927 North American datum using a central meridian (CM) of 159°, a north constant of 0 and an east constant of 500,000. Positional accuracy of the presented data is better than 10 m, with respect to the UTM grid.

ELECTROMAGNETICS

To determine the location of EM anomalies or their boundaries, the DigHEM[®] EM system measured inphase and quadrature components at five frequencies. Two vertical coaxial-coil pairs operated at 1000 and 5500 Hz while three horizontal coplanar-coil pairs operated at 900, 7200, and 56,000 Hz. EM data were sampled at 0.1 second intervals. The EM system responds to bedrock conductors, conductive overburden, and cultural sources. The type of conductor is indicated on the aeromagnetic map by the interpretive symbol attached to each EM anomaly. Determination of the type of conductor is based on EM anomaly shapes of the coaxial- and coplanar-coil responses, together with conductor and magnetic patterns and topography. The power line monitor and the flight track video were examined to locate cultural sources.

ELECTROMAGNETIC ANOMALIES



- | | |
|----------------|----------------------|
| Anomaly | Conductance |
| ● | >100 siemens |
| ● | 50-100 siemens |
| ● | 20-50 siemens |
| ● | 10-20 siemens |
| ● | 5-10 siemens |
| ● | 1-5 siemens |
| ● | <1 siemens |
| ● | Questionable anomaly |
| Δ | EM magnetic response |
-
- | | |
|----------------------------|---|
| Interpretive symbol | Conductor ("model") |
| B | Bedrock conductor |
| D | Narrow bedrock conductor ("thin sheet") |
| S | Conductive cover ("horizontal thin sheet") |
| H | Broad conductive rock unit, deep conductive weathering, thick conductive cover ("thick spread") |
| E | Edge of broad conductor ("edge of hill spread") |
| L | Culture, e.g., power line, metal building or fence |

TOTAL MAGNETIC FIELD AND
DETAILED ELECTROMAGNETIC ANOMALIES
OF PARTS OF SOUTHERN
NATIONAL PETROLEUM RESERVE - ALASKA,
NORTHWEST ALASKA

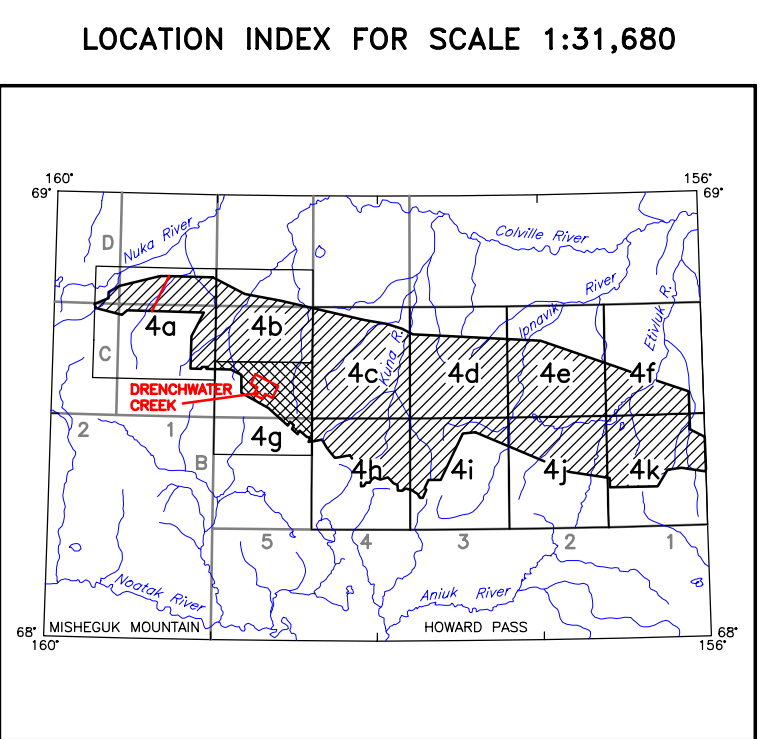
PARTS of HOWARD PASS B-5 and C-5 QUADRANGLES

by
Laurel E. Burns, U.S. Bureau of Land Management, Fugro Airborne Surveys Corp.,
and Stevens Exploration Management Corp.
2006

TOTAL MAGNETIC FIELD

The magnetic total field contours were produced using digitally recorded data from a Scintrex cesium C52 magnetometer, with a sampling interval of 0.1 seconds. The magnetic data were (1) corrected for diurnal variations by subtraction of the digitally recorded base station magnetic data, (2) adjusted for regional variations (or IGRF gradient, 2005, updated to August 2005) using altimeter adjusted IGRF, (3) leveled to the tie line data, and (4) interpolated onto a regular 60 m grid using a modified Akima (1970) technique.

Akima, H., 1970. A new method of interpolation and smooth curve fitting based on local procedures. Journal of the Association of Computing Machinery, v. 17, no. 4, p. 589-602.



SURVEY HISTORY

This map has been compiled and drawn under contract between the State of Alaska, Department of Natural Resources, Division of Geological & Geophysical Surveys (DGGGS), and Stevens Exploration Management Corp. Airborne geophysical data for the area were acquired and processed by Fugro Airborne Surveys Corp. in 2005. Funding for the project was provided by the U.S. Department of the Interior, Bureau of Land Management (BLM).

This map and other products from this survey are available by mail order in person from DGGGS, 3354 College Road, Fairbanks, Alaska, 99709-3707. Published maps are also available for viewing or downloading as Adobe Acrobat Files (.pdf) on our Web site (<http://www.dggs.state.ak.us/pubs/>). Some products are also available for viewing at the BLM Alaska State Office, 222 W. 7th Avenue, Anchorage, AK 99513.